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hand, and smashing the back-bone with the huge sword-like carver, which was native-made. One half was handed over to the other side of the table amid much merriment. The head was severed, and choice morsels cut from the sides and handed over to the governor and visitors. One thing I remarked which was amusing, though disgusting. If the governor espied a nice morsel on the plate of his aide-de-camp, who sat next to him, he would at once snatch it from his plate and help himself with his fingers, throwing the bones, or rather emptying the bones, from his own plate on the young man's, who seemed quite used to that sort of thing, and felt honoured, no doubt, that his superior had deigned even to notice him at all, much more to deprive him of the choice things upon his plate, and indeed he seemed very much pleased to have the honour of picking the bones which his master had left.

The mode of dining in the more primitive form is much more real and enjoyable. Every one seems at ease and comfortable, because in a natural position. The rice having boiled its stated time in an earthenware or iron pot on the fire, is produced, steaming hot, and poured upon nice green leaves (ravenfontsy) spread out on nice mats upon the floor. The soup is prepared, the wild fowl or beef has been roasted and boiled, and all sit down on the floor to dinner. Each person has given him, or her, by the slaves, several slips of the same leaf, which are instantly converted into *shovels*, or rather extemporaneous spoons. The rice is shovelled up and held over the left shoulder, that a slave may pour upon it the soup or *bouillon*. This is emptied into the mouth, and each person helps himself to the fowl and beef with his fingers. When all have had sufficient, a slave goes round with a bamboo-cane and pours water into each person's hands to cleanse them. The Malagash are particularly clean in this respect. The teeth are washed and the mouth cleansed after every meal; the consequence is we rarely find a Malagash with unsound teeth or impure breath. The teeth of the Malagash people generally are white and beautiful.

The Betsimisarakas are remarkably clean in their habits. When I have been travelling about the country I have remarked how frequently they bathe. Whenever we rested at a stream these men (the bearers) had a plunge, and purified themselves from the perspiration and dust which had accumulated on the journey. I never knew them to enter into a town or village without first washing themselves in a stream and arranging their attire. The consequence naturally follows that we very rarely find leprosy and skin-disease amongst *them*. But amongst the Hovahs it is very common. The lepers in Tamatave and Foulepoint were all Hovahs.

It must be remembered the Hovahs lead a more settled and sedentary life than do the Betsimisarakas. The Hovahs along the coast very rarely work. Their chief occupations being trading and employment on the Queen's service, such as soldiers, police, or customs. Many of these men never see or touch water from year to year, except to drink.

The great curse of the people seems to be *drink*. The quantity of rum imported is enormous. Only take Foulepoint for example, and we find that every year there are 2250 gallons of rum imported every month, or 22,500 gallons per annum; while at Tamatave there are 112,700 gallons imported. The natives also prepare a native drink called *betsa-betsa*.

2.—Journey from Tamatave to the French Island Colony of St. Mary, Madagascar. By T. WILKINSON, Esq.

December 17th, 1868.—Early this morning I left Tamatave, with my palanquin and bearers, for the French colony of St. Mary, to the north of

Tamatave. Besides the palanquin, there was a good-sized trunk filled with clothing and provisions, and which, suspended on a pole between two men, was, together with some bedding, quite a load for them, and they could with difficulty keep up with the palanquin and bearers. Proceeding slowly, we reached the same evening the village of Ifontsy, situated about half-way between Tamatave and Foulepointe, having passed during the day a small village called Vohidoity, for a description of which, as well as the intervening country between Tamatave and Foulepointe, I refer inquirers to the works of Ellis, the missionary, upon Madagascar, which contain all the necessary information. On the 18th, at an early hour, we left Ifontsy, and reached Foulepointe, as the French call it, about mid-day. There are only about three foreign residents, traders, in this place. One of them had a small coasting lugger anchored close in-shore, with which in fine weather he traded between St. Mary and divers parts of the Malagash coast.

On the 19th we (myself and bearers) left Foulepointe early in the morning in a northerly direction, the route being more or less along the sea-beach, and in cutting off corners we sometimes passed through tracks of timbered lands. The first canoe crossing-place was called (as pronounced) "Angäbä," but whether a river or a lagoon, I could not determine on account of the sluggish nature of the water, which appeared to have no movement one way or the other, and I was in too much of a hurry to try and examine it further up. We soon reached another crossing-place of the same kind, called (as pronounced) "Fangafaran." At each crossing-place we paid the sum of about two pence to the owner of the canoes, who assisted in paddling us over. The canoes were so small and wretched that only three or four persons could cross each trip, and the least imprudence or unsteadiness would cause the upsetting of the canoes, the loss of the baggage, and the drowning, probably, of any passengers who could not swim. About 11 A.M. we arrived at Mahambo, a rice-trading village on the coast, that had considerably increased in size during the last few years. My host here, a native of Mauritius, was engaged in trading in cotton goods with the natives, in exchange for rice, of which grain (the staple produce of Madagascar) he stated that Mahambo furnishes about 600 tons yearly. He had a quantity of rice on hand, and was waiting for a ship to send it to Mauritius. He also stated that the anchorage, open to the northward, but protected by land and a coral-reef on the other sides, could accommodate vessels of 600 or 700 tons, and that vessels of only 300 tons could come in almost close to the shore, also that several cargoes of bullocks have been shipped from this place to Mauritius this year. The place, which was formerly very small, has now a population of probably 1000 Malagash, as also two or three foreign rice-traders, who buy rice from the natives, and resell it to the Mauritius and other vessels that come in here. A battery is in course of construction by the Hovahs, and the red earth and clay of which it is composed looms bright in the rays of the sun, and can be seen at a considerable distance. After breakfast we started northward, and late in the evening reached Fenoarivo, a place of considerable importance on account of its rice-trade. Between Mahambo and Fenoarivo we had crossed a river or lake connected with the sea, named (as pronounced) "Azafo," and we also saw some large long stones, sticking upright in the ground, and wrapped up in white calico, said to be in memory of dead persons. Our path was over rocks that jutted out into, and bounded, the sea; over plains covered with fine wiry grass; through forests in which orchids were very conspicuous, and through parklike scenery that much resembles portions of Australia. During the journey from Tamatave up to this point, I noticed that where the sea-beach is sandy the trees grow at some distance from it, and there is much back-water, as though the sea had gradually retired and left some of its waters behind it; but where the beach is rocky the trees and sea meet, the sea

washing up into the roots of the trees, and instead of back-water there is, so to speak, "back-land," large rocks in isolated masses far out into the sea, around and over which the sea dashes with great force.

On approaching Fenoarivo the scenery became much more romantic, hills and red solid earth, instead of the everlasting level sands that skirt the sea-shore to the north and south of Tamatave. Fenoarivo is much larger, and has a more ancient appearance than Mahambo, and there are immense mango-trees, as at Foulepointe. Opposite the village is a small low wooded island, named (as pronounced) "Nossi Ansamo," and said to have been used as a burial-place from time immemorial for the ancient chiefs of this part of the country, some of whose descendants, scattered and few since the Hovah conquests, continue to use it at the present time.

Fenoarivo is situated in a large bay, in which there is again a smaller bay, where boats and small craft anchor. The bay proper, where large vessels anchor, is protected from wind and sea by the mainland and by the island already mentioned, and is said to be safe in ordinary weather. The anchorage ground consists of sand and mud, the latter carried down and deposited in the sea by one or both of the two rivers that run into the bay on each side of the village of Fenoarivo. There is a battery at some distance from the bay. The native population of the place is, including the garrison, probably about 2500, and there is a long street, apparently the only street in the place, about a quarter of a mile long, running nearly east and west. On account of the rain which fell on the morning of the 21st, we did not start until mid-day. Our route was principally along the sea-shore, which was fringed by such trees as "vacoas" and "filaos," as they are called in Mauritius, and other trees. About 3 P.M. we arrived at a lake several miles in circumference, called "Tampolo," between which and the sea we had barely room to pass dryshod, the sea-mouth of the lake appearing to have been recently closed by a bar of sand, like many other outlets which close and open again at intervals. About two hours before sundown we crossed, in a frail canoe, the wide mouth of the romantic-looking river called (as pronounced) "Manangoro." A fresh north-east breeze blowing at the time raised such a ripple as to cause the water to wash into the canoe, and only four persons, sitting as still as possible, could be conveyed over at one time, so that it took nearly two hours to pass over our whole party. Upon landing on the opposite side we had to ascend a steep hill to reach a group of huts where we were to pass the night, and which form one of the government stations for the relays of runners employed to forward letters and messages in cases of emergency. The view from the hill-top was magnificent. To the eastward the sea, lighted up by the rays of the setting sun, was spread out as far as the eye could reach, and high ranges of hills bounded the vision westward, while between them and the sea were other hills and forests and the wide spreading river, very wide here at its mouth and studded with islands, among which a few fishing-canoes were silently gliding. The fish seemed abundant, from the manner in which, ever and anon, they leaped from the water into the air, and there is also said to be good shooting on this river. On the 22nd we started at daylight, as usual, to escape the fiery rays of the sun as much as possible, and having crossed the (as pronounced) "Manansatra" River about 10 A.M., reached a rice-trading village named (as pronounced) "Manankatafa" about 11 A.M., where we breakfasted. The rice from the interior that is purchased here is sent on to Fenoarivo, or St. Mary, by sea in canoes, the sea being much calmer here than on many other parts of the coast on account of the island of St. Mary (Malagash name "Nossi-bryo") acting as a sort of breakwater to the heavy sea-swell. The track, so far, along the coast had been level and easy of access, but an hour or two after leaving Manankatafa it became so difficult that I had to dismount from my palanquin and travel on foot for about 2 miles. Our path lay along

steep ascents and descents, over hills of red earth mixed with white quartz; over mountain streams in which the water was deliciously sweet and cool; over and under fallen and half-fallen trees; and over rocks, shrubs, and flowers, that obstructed the track, which, originally a mere footpath, had been so worn year after year by the hill-torrents that it has now become in places a deep gully, or furrow, several feet high on each side, though only wide enough for one man to walk in, and the forest was so thick and tangled in some places as to cover the top of the gully, thus forming a sort of tunnel, the whole scene reminding me of the difficult road between the coast and the capital. From the top of one of the steepest ascents there was a fine view, decidedly the best on this part of the coast, of St. Mary, with its white-looking buildings and fortifications distinctly visible at a distance of many miles to seaward, while to the northward and westward, bounded only by the horizon, were lofty ranges covered with thick forests. The long low sandy "Point Laree," as the French call it, or "Evonga," as it is called by the Malagash, was also visible, running away out to the eastward until it appeared almost to touch St. Mary, the sight of which in the possession of the French does not tend, probably, to produce the most amiable feeling in the breasts of the Hovahs. The path finally descended again to the coast, where, over sand and rock, we followed along the sea-shore, which was here covered with red seaweed, until we came to some wretched-looking huts on the river called (as pronounced) "Marimbo," where we stayed for the night.

There being no empty hut, I had to sleep in the same room with a Hovah family of several persons, and a number of fowls, fleas, &c., &c.; and the large fire by which the family was cooking its rice (for these people always dine late) made the hut intensely hot and very trying to a sick person like me.

Early on the 23rd we crossed, in a canoe, the River Marimbo, and about 10 A.M. arrived at the River Tsiamago, where were a few miserable huts, and where we breakfasted, having previously passed, about 9 A.M., the Hovah village and battery of Masovariaka, the military commander of which rules over Point Laree and the adjacent country. The battery was situated some distance off from the road, to our left, and presented the appearance of a hill crowned with huts, and, being at least half a day's journey inland from Point Laree, could not be so easily surprised by a French descent as if it were nearer the Point. After breakfast we crossed the river in a canoe, and proceeded over a low sandy country covered with woods and swamps. The heat was intense, as the lowness of the land and the trees completely shut out the sea-breeze, and we were glad, about 4 P.M., to reach Point Laree, where there are a custom-house, flagstaff, and Hovah officials. The only vegetation seemed to be a few coco-nut trees, and there were a quantity of native huts, in one of which lived a Frenchman (the only foreign resident in the place), together with his mistress, though he has another establishment and another mistress at the adjacent island of St. Mary, where he was visiting at the time of my arrival, and with which he carries on a trade in rice and bullocks by means of large canoes. As he was absent, however, his mistress refused to let me have a canoe, so that I could not cross over to St. Mary that day as I had intended.

The Hovah chief of the custom-house, however, was very kind, and placed at my disposal a large, well made, airy hut, furnished with chairs and tables. Point Laree, or Gronga, seems capable of furnishing rice and bullocks to shipping, though ships seldom call here, notwithstanding that there is a tolerable anchorage to leeward of the Point, the long island of St. Mary abreast, forming a sort of natural breakwater. One day's journey up the coast is the bay, called Tintingue by the French, and Mahela by the Malagash, which, though a secure anchorage, is seldom visited by shipping, there being no Hovah governor nor custom-house there. Point Laree seems an open sandy point, with nothing but a few miserable trees to protect it from the summer

sun and the bleak wind of winter. There are about 100 huts, and, allowing two persons on an average to each hut, this would give a population of 200 persons. Between here and Tamatave the traveller can procure fish, fowls, rice, and eggs at most of the stations, and that is all there is; scarcely a drop of milk could I get in a country where cattle swarm, and butter or cheese are, of course, things not known. Population is sparse, and there is no cultivation to speak of, except rice, the production of which all over this part of the island would probably be much increased did proper means of transport to bring it to the shipping depôts on the coast exist; but under the present uncivilised system nothing will ever exist, except perhaps missionaries, who are at the capital in fifties, and seem to flourish. The poor population of this portion of the coast lives upon rice, fish, bananas, sugar-cane, and such other easily obtained food as the place affords; while the wages—about six shillings per month—that some of them receive from foreign traders, together with the trade that they drive with, and the custom dues that they receive from, foreigners, also help them to make a living. The traveller should come well provided with “cut money” (French five-franc pieces chopped up into little bits), the change of the country; for, whereas near Tamatave it is so plentiful that he receives the value of 104 cents in exchange for a five-franc piece, here he only obtains 96 cents, and very often no change at all can be procured. On the 24th I fell in with an old Malagash native of St. Mary, and consequently a French subject, who was going to cross over to St. Mary on the morrow, with some bags of rice, and he promised to give me a passage in his canoe on the top of the rice-bags. Communication with St. Mary seemed (probably from political motives) to be discouraged as much as possible.

After about three hours' passage, we landed at a small wooded inlet, where was a hut inhabited by a Franco-Malagash policeman, and where we landed some baggage; after which, coasting along the island to the southward, hills, roads, and trees were often visible, with here and there a hut and a patch of reddish black, where the red soil had been denuded by fire of its native verdure preliminary to planting it with rice; and after two hours of this kind of coasting, sometimes under sail, and at other times propelled by our oars, we reached, about 11 A.M., a snug little wooded cove, called (as pronounced) “Ambatakokoa,” where the owner of the canoe resided, and after the rice had been landed, the canoe was hauled up on to the beach, and the party had some boiled rice, fish, &c., &c., as refreshment. I then hired a small canoe for the sum of 10*l.*, and after a trip of three hours more in a southerly direction along the coast, nearly upsetting once or twice, the country gradually assumed a more level appearance. The coco-nut trees were more and more numerous, the white buildings of the French seat of government, called (as pronounced) “Ambodifatre,” began to appear as we finally landed. It was Christmas Day, and several French flags were flying; there were quite a number of well-built stone houses, some fortifications, a floating bridge, and a good road,—a wonderful thing in Madagascar. It appears altogether to be the best built place on this coast at least, and perhaps with the exception of a portion of the capital, the best built place in Madagascar. A black Malagash policeman, in French employ and uniform, met me at landing, and asked me if I came from the “Grande terre,” meaning the Madagascar mainland, he also asked me my name, and I gave him my card to carry off to his superior in command. The place where I landed was called “Isle Madam,” a very small island connected by a temporary floating bridge with the main island, and on it are constructed nearly all the Government establishments, such as Government House, Government stores, barracks, the Military Hospital, &c., &c. The island of St. Mary is about 50 kilometres long, by 10 wide, and is situated at the distance of about 8 miles from the nearest point of the Malagash coast. The reefs on the east coast of the island make it inaccessible to

shipping on that side, but on the west side a gap in the belt of reefs enables vessels of large tonnage to penetrate into a bay formed by the embouchures of two small rivers, and it was close to this spot, the residence of the few French inhabitants of the island, that I had landed. The anchorage, say the French, is deep, 8 or 10 metres, and the waters are always calm.

3.—On the Specific Gravity of the Water of the South Atlantic.* By SAMUEL WHITE HODDING.

The chief differences in oceanic specific gravity arise from rainfall and evaporation. The increase or diminution of change caused by the latter is quite apparent from daily observation, but when a region of ten degrees square is taken to mean observations, and the results found carried on to the adjacent regions similarly treated, the effect of the relative degree of evaporation is marked and interesting. For some years past I have made a practice of taking observations of the dry- and damp-bulb thermometers every two hours throughout the twenty-four. These have been registered in the same latitudes on three following voyages at the same season of the year, and when duly meaned enable me to point out their value in showing the relative degree of moisture prevailing over the regions traversed on our homeward route. The comparison of the differences between the two thermometers with the change in specific gravity is especially worthy of note, and may be clearly traced in the following table, in which observations are entered which are taken in the parallels between 35 s. and 30 n.

Atlantic Ocean.	Specific Gravity.	Difference of Dry and Wet Bulbs.
Between 35° S and 30° S *02579 3°6
,, 30 ,, 20 *02638 4°5
,, 20 ,, 10 *02717 5°0
,, 10 ,, 0 *02686 4°6
,, 0 ,, 10 N *02623 3°5
,, 10 ,, 20 *02655 3°7
,, 20 ,, 30 *02754 4°4

By this table it is shown that—

An increase of 0·9	between the thermometer	gives an increase of	*00059
,, 0·5	,,	,,	*00079
A decrease of 0·4	,,	a decrease of	*00031
,, 1·1	,,	,,	*00063
An increase of 0·2	,,	an increase of	*00032
,, 0·7	,,	,,	*00099

From these figures it appears that an *increase* in the amount of evaporation has more effect in *increasing* the range of specific gravity than a decrease has in diminishing it; showing, it would seem, a tendency of sea-water to establish its equilibrium more easily when disturbed by rainfall than when rendered heavier by an increase of evaporation. From the six observations in the last table, the four cases of increase against the two of decrease give the following result:—

An increase of 0·575° causes an increase in specific gravity of *000672,
but

A decrease of 0·75° only causes a decrease in specific gravity of *000470.

* Extracted from a Memoir communicated to the Society by the author, 'On the Currents and Specific Gravity of the South Atlantic.'